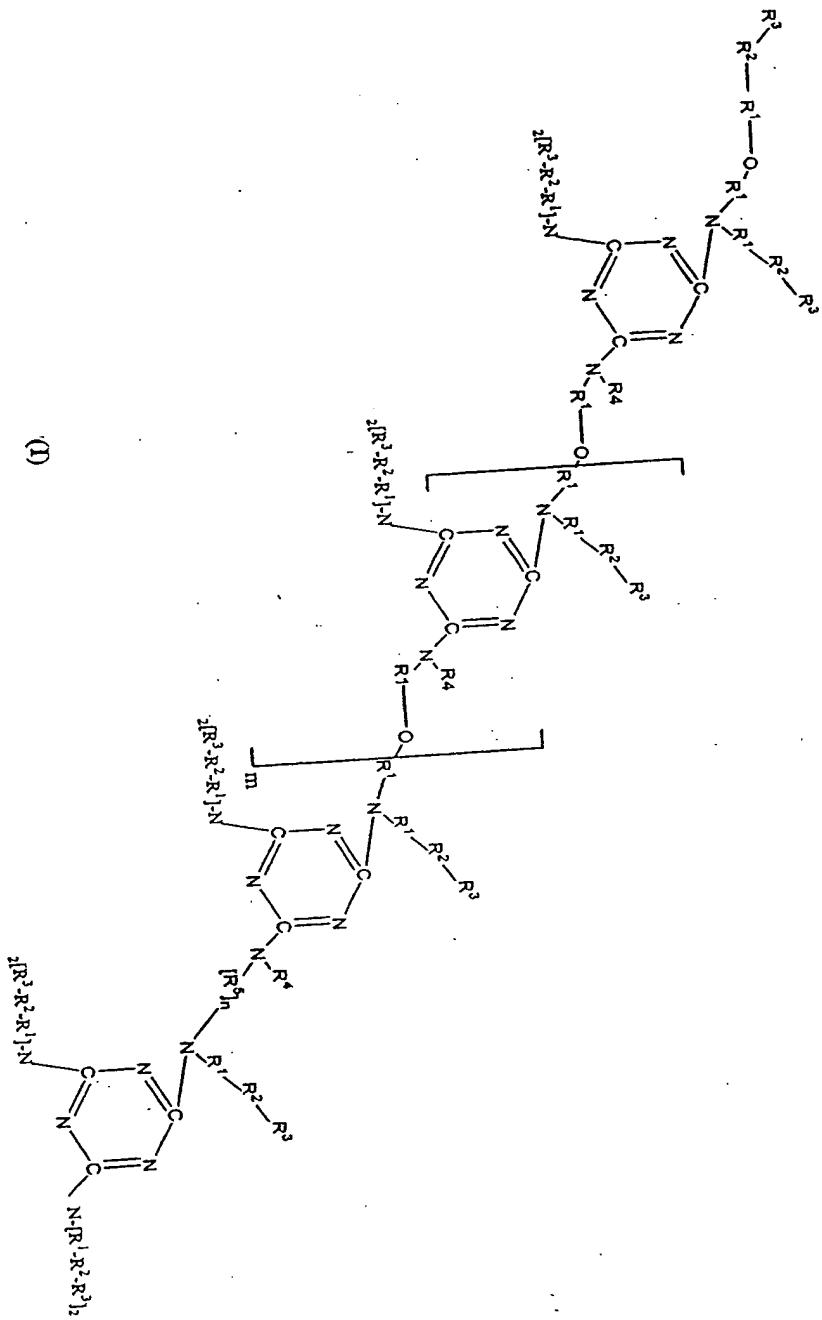


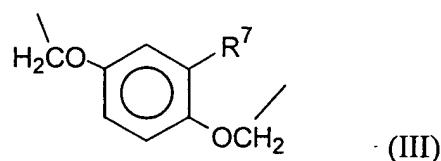
ABSTRACT OF THE DISCLOSURE

The invention provides a melamine-ring containing polymer and methods of preparing the melamine-ring containing structure. The polymer of the invention may be represented by the general structure (I):



wherein m is an integer of 1 to 100; R¹ is independently selected from an alkyl group having one to twenty carbon atoms; R² is independently selected from the group consisting of an oxygen atom and a sulfur atom; R³ is independently selected from an alkyl group, an allyl group, an alkynyl group, an 5 aryl group, and a phenyl group, having one to seventy carbon atoms; R⁴ is independently selected from -C_pH_{2p}OH; -C_pH_{2p-1}OH; -C_pH_{2p-2}OH, wherein p is an integer of one to seven; a hydrogen atom; a carboxyl group, an alkyl group; an allyl group; and an alkynyl group; R⁵ is independently selected from the group consisting of an alkyl group, an alkyl group containing at least one ether linkage, and the group represented by the formula (III) :

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and; n is an integer of one to thirty. The invention also includes methods of preparing the polymer of the inventions. The methods include reacting a melamine base resin with a reactant compound that contains a functional group that is a carboxyl group, a hydroxyl group and a thiol group, or a combination of these groups.

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